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MSD/PIC/107/59

Office of Scientific Intelligence/ Guided Missile Division

28 August 1959

Photo Intelligence Center/Military Scientific Division

Requirement No. SI/R-31/59.

The enclosed information is submitted in partial answer to your requirement SI/R-31/59. Your requirement will be completely answered in a report soon to be published by this Center.

[redacted]

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Enclosures (4)
Text & 3 Graphics

cc - OSI/GMD
OSI/ED Atten: [redacted]
PIC/CCS
PIC/MSD Proj. Folder P214-59

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Referral Declassification by NIMA/DoD

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The guidance system at the [redacted] SAM site consists of a previously unknown multiple screen guidance radar, a SPOON REST radar, 6 ZIS 151 vans and 3 generator trailers. All components of the guidance system, including the missile launchers, are linked by a cable net (fig. 3).

The guidance radar (fig. 1, 2) consists of a [redacted] cab atop 25X which are mounted horizontal and vertical probable electronic scan radars, a parabolic dish, a flat or very slightly curved dish, and a long narrow housing of unknown purpose. The entire unit is mounted on a low wheeled carriage. The cab, with the attached antenna array, has been observed on photography to rotate 180° in azimuth. There is no physical obstacle to prevent a 360° rotational capability. All reflectors except the horizontal scanning radar have been observed in elevation train. It should be noted that the elevation train, when observed was present in all these reflectors and apparently in the same amount.

The horizontal and vertical scanning radars, [redacted] long 25X respectively, appear to be identical in construction except for the difference in length. The curved reflectors are [redacted] long 25X feed extending the length of the reflector. The feed emanates from the side of the reflector, extending almost half way across and leaving a [redacted] 25X gap between the tip of the feed and the rear of the screen (fig. 2).

[redacted] 25X The vertical reflector, however, has been observed on photography to tilt upward 30°. There is no obstacle to prevent further tilt of the vertical reflector.

25X1 A [redacted] parabolic dish is mounted on an arm extending from the end of the horizontal reflector supporting structure. No feed is discernible for this dish. The arm and dish have been observed in two positions: with the arm and dish parallel to the long axis of the radar and the dish oriented vertically; with the arm rotated forward 45°, at which time the dish was toed-in 20° and tilted up approximately 30°. There is no apparent physical obstacle to prevent either additional arm motion or tilt of the parabolic dish, however, the lack of any extensive mechanism suggests that the capability for arm motion is limited. The length of the arm, and the absence of any bracing members, suggests that the dish might lack the physical stability necessary to establish fine direction at extended ranges.

25X1 A [redacted] dish, with a flat or very slightly curved surface, is mounted at the top front of the horizontal scanning radar. The feed for this dish
25X1 consists of a [redacted] diameter cylinder, [redacted] long, mounted, by means of a 25X
25X1 smaller diameter rod, [redacted] from the face of the dish. This dish has been observed, on comparative photographic coverage, both in the vertical position and with a back tilt of approximately 30°. No azimuth train has been observed. Since the bottom of the dish when in the vertical position slightly overlaps

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the front of the horizontal scanning radar, azimuth train would be obstructed unless sufficient tilt were induced for the bottom of the dish to clear the horizontal screen.

Across the top of the horizontal radar supporting structure is a housing of unknown purpose. It measures [redacted] by approximately [redacted] in height, and is slightly rounded at the ends. It has been theorized that this housing could contain VHF antennae for missile guidance command. 25X 25X

The control equipment of the [redacted] missile guidance system is located in the 6 ZIS 151 vans parked in the revetment adjacent to the guidance radar (fig. 3). These 6 trucks are linked into a heavy cable, which runs only the length of the line of vehicles. Lighter cables from the guidance radar, the SPOON REST radar, and the launchers lead into this central cable link. The power source, three generator trailers, is located in an adjoining revetment. A seventh ZIS van is parked by the generator trailers. This van is not visibly tied into the cable net, and may be a maintenance vehicle. 25X1

No radar calibration device has been identified.

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On [redacted] photography a communications van, with probable DRY RACK and HAT RACK antennae, was located in the position indicated on fig. 3. These antennae were both oriented on a azimuth of 291° 30'. On [redacted] the van and antennae had been removed [redacted] 25X 25X

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